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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,818	-03/06/2002	James A. Frazier JR.	50847.00114	9406

7590 04/24/2003

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EXAMINER

ISSING, GREGORY C

ART UNIT	PAPER NUMBER
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3662

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,818

Applicant(s)

FRAZIER ET AL.

Examiner

Gregory C. Issing

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 45 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, the language “the traffic interrogations” lacks a proper antecedent basis. Secondly, the claim upon which claim 45 depends defines a passive system without interrogations, thus, the use of interrogations as well as radar contradicts such. Therefore, claim 45 is indefinite.

Claim 49 lacks a proper antecedent basis for “the cell leader.”

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 38, 42-44, and 46- 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Constant.

Constant discloses the claimed system for controlling the movement of aircraft in a formation including (1) a data link transponder 3 for transmitting and receiving broadcast data to and from respective aircraft wherein the data includes heading, speed, absolute position, altitude, bearing angle, etc.; (2) a GPS receiver 11 for providing position information of own aircraft; (3) a processor 2 which determines the relative positions of all of the aircraft, generates commands dictating a commanded position, heading, speed and altitude,; and (4) a transmitter 31 in the lead

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aircraft for transmitting the commands to the follower aircraft. The processor meets the scope of "a computer of a traffic alert and collision avoidance system" since it is a computer that monitors the positions of respective aircraft in order to maintain a close formation flight without collision.

Additionally, Figure 1 shows cell leaders L_j and L_{j-1} of respective cells F_j and F_{j-1} in communication, wherein cell leader L_j may be an absolute leader and cell leader L_{j-1} may be a follower leader, as well as the cell leader L_j in communication with cell followers E_1 - E_N .

Identification data is inherent.

5. Claims 38, 42-44, 46 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodwin et al.

Goodwin et al disclose the claimed use of navigation data from GPS to generate positional information as well as the communication thereof to a leader aircraft which determines the relative positions of all of the follower aircraft in the formation and provides formation control signals via a data link to the follower aircraft.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Constant in view of either one of Boisvert et al or Drouilhet, Jr. et al.

Constant teaches the subject matter substantially as claimed including a radio communication link between the aircraft but fails to specify the radio link as a Mode S, ADS or extended squitter link. Each of Boisvert et al and Drouilhet, Jr. et al suggest the desirability of

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ADS-Mode S as it provides a natural transition from a beacon-based surveillance environment to a satellite based navigation ADS environment. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Constant by utilizing an ADS-Mode S squitter as the communication link for broadcasting the positional information between the aircraft in light of the fact that the such may provide highly reliable information transfer in view of the teaching of either Boisvert et al and Drouilhet, Jr. et al.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jenkinson et al disclose applications of automatic formation flight for civil operations and discusses automatic formation flying and formation flying. Additionally, it suggests the use of TCAS to couple the relative positioning information, derived from GPS, between aircraft for effecting automatic formation flying as well as collision warning. Farmakis et al disclose a satellite-based (GPS) collision avoidance system for aircraft wherein evasive maneuver commands are provided between aircraft to provide steering control. Rodriguez teaches a system for providing automatic formation turns.

9. The Substitute Specification is entered.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (703)-306-4156.

The examiner can normally be reached on Mon-Thurs 6:30-5:00.

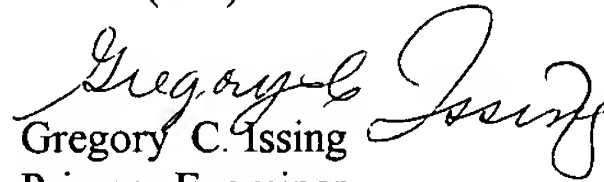
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703)-306-4171. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9326 for regular communications and (703) 872-9327 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


Gregory C. Issing
Primary Examiner
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gci
April 15, 2003